

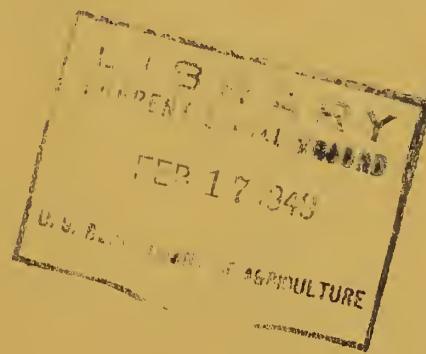
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FEDERAL-STATE COOPERATIVE SNOW SURVEYS and IRRIGATION WATER FORECASTS

for
OREGON
February 1, 1949



by

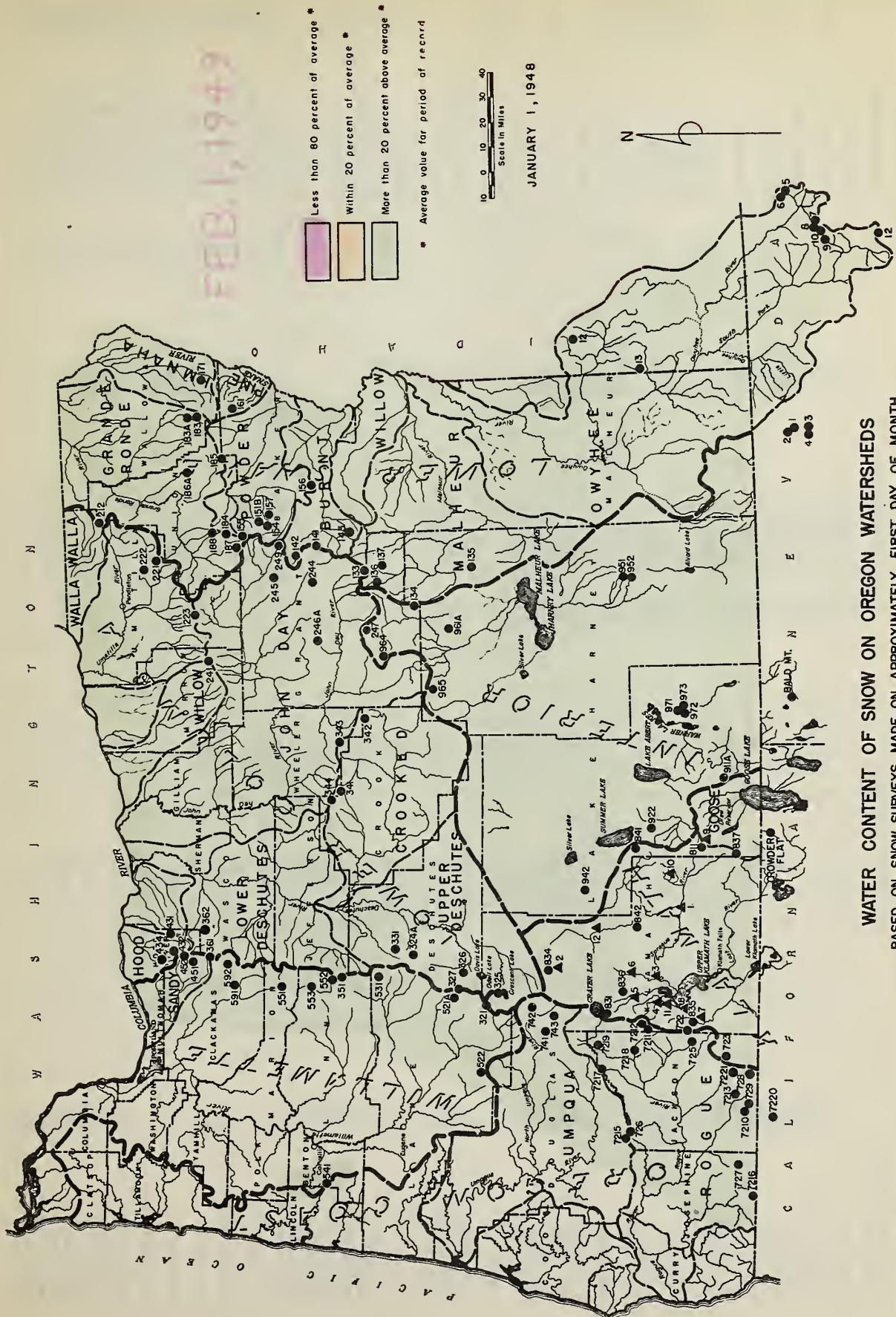
Division of Irrigation, Soil Conservation Service
United States Department of Agriculture
and
Oregon Agricultural Experiment Station

Data included in this report were obtained by the agencies named above in cooperation with the Oregon State Engineer,
U.S. Forest Service, National Park Service and other Federal, State, and local organizations

FEDERAL-STATE COOPERATIVE
SNOW SURVEYS AND IRRIGATION WATER FORECASTS
FOR
OREGON

Report Prepared
by
W. T. Frost -- Hydraulic Engineer

Division of Irrigation
Soil Conservation Service
and
Oregon Agricultural Experiment Station
P. O. Box 1149
Medford, Oregon



WATER CONTENT OF SNOW ON OREGON WATERSHEDS

BASED ON SNOW SURVEYS MADE ON APPROXIMATELY FIRST DAY OF MONTH

(Volley Londs Not Necessarily Included)

INDEX TO SNOW COURSES

Number	Name	Elev.	LOWER COLUMBIA DRAINAGE			Elev.			WILLAMETTE RIVER			Elev.			INTERIOR DRAINAGE			
Number	Name	Elev.																
	UPPER COLUMBIA DRAINAGE								551	Brettenshush	2325							
	Lower Snake in Oregon								321	Cascade Summit	4880							
	Owyhee River								522	Chariton Lake	4500							
Nev. 6	Big Bend	6800							327	Hoggs Pass	5750							
Nev. 1	Buckskin, Lower	6800							351	McKenzie	4755							
Nev. 2	Buckskin, Upper	8200							531	Marion Forks	4800							
952	Fish Creek	7900							553	Mary's Peak	2730							
Nev. 7	Fry Canyon	6800							521	Santiam Junction	3620							
Nev. 5	Gold Creek Ranger Sta.	6600							552	Waldo Lake	3990							
Nev. 4	Granite Peak	8600							521A									
Nev. 9	Jack Creek, Lower	7000							5070	Tollgate	5070							
Nev. 3	Jack Creek, Upper	7800							212									
Nev. 10	Martin Creek	7000							222	Emigrant Springs	3925							
Nev. 8	Rodeo Flat	7000							223	Lucky Strike	5050							
Ida. 12	Silver City	6400							221	Meacham	43900							
951	South Mountain No. 22	6900							212	Tollgate	5070							
Nev. 12	Taylor Canyon	5200							241	Arduckle Mountain	54.00							
	MALHEUR RIVER								241	Arduckle Mountain	5400							
133	Blue Mountain Spring	5900							133	Beech Creek Summit	4800							
137	Crane Prairie	5375							244	Blue Mountain Spring	5900							
136	Lake Creek	5120							249	Dixie Springs	6650							
134	Rock Spring	5100							964	Gold Center	5240							
135	Stinking Water	4800							245	Olive Lake	6000							
	BURNT RIVER								965	Snow Mountain	6300							
									247B	Starr Ridge	5150							
									326	DESCHUTES RIVER	4400							
									321	Caldwell Ranch	4880							
									327	Cascade Summit	5750							
									361	Chariton Lake	3500							
									325	Crescent Lake	4760							
									343	Derr	5670							
									351	Hoggs Pass	4755							
									344	Marks Creek	4540							
									324A	New Dutchman Flat	6400							
									341	Oohoo Meadows	5200							
									362	Rock Creek	4200							
									965	Snow Mountain	6300							
									342	Tamarack	4800							
									331	Three Creeks Meadows	5600							
									431	HOOD RIVER	1300							
									131	Brooks Meadows	1400							
									132	Red Hill	6000							
									432	Tilly Jane-Mt. Hood	6000							

February 1, 1949

PRELIMINARY WATER SUPPLY OUTLOOK

The outlook for Oregon's 1949 water supplies for irrigation is excellent with mountain snow cover already considerably above normal throughout the state. If snow continues to accumulate even at normal rate, a potential flood hazard exceeding that of 1948 will exist. Reservoired water supplies are generally "good" to "excellent."

Mountain snow cover, as of February 1, averages 156 percent normal throughout the state with greatest accumulations on the northern Cascades where it varies from 190 to 250 percent normal and in the Blue Mountains where it is 150 to 200 percent normal. The snow above 5000 feet is 144 percent average and 159 percent of last year while the low-elevation snow between 2000 and 5000 feet is now 221 percent average and 306 percent of last year. This abundant low-elevation snow is very important.

The flood potential of the present snow cover in the Willamette, Umpqua, and Rogue River basins is high and would produce severe winter floods should a warm period occur together with a rainfall on the abnormally heavy low-elevation snow. Continued heavy snowfall for the balance of the winter with a late cold spring may cause spring flood conditions as great as or exceeding those of last year on most Oregon drainages.

Watershed soils are generally well saturated and mostly unfrozen under the snow. This condition favors a well sustained runoff from the spring snow-pack.

Total water stored in all reservoirs is 5 percent less than at this time last year, 19 percent less than in 1947 and 23 percent less than average. Only one-third of the more important reservoirs are half full or better. In spite of this, general reservoir supplies are "good" except for the Owyhee, Warm Springs, Gerber and Clear Lake reservoirs which now hold "fair" supplies.

A tabulation of preliminary streamflow forecasts is presented on pages 2 and 3 of this report.

PRELIMINARY STREAMFLOW FORECASTS, FEBRUARY 1, 1949

The following preliminary runoff forecasts are based on present mountain snow cover and on the assumption that average February and March increase of snow cover will occur. Greater or less than average increase in mountain snow cover during the next two months will correspondingly modify these estimates:

BASIN AND STREAM	Apr.-Sept., inc. Streamflow in Thous. Ac. Ft.				
	Forecast 1949	Measured Runoff 1948	1947	10-yr. avg. 1946	1938-47
NORTHCENTRAL OREGON					
Hood River, W. Fk. near Dee	210.0	a	149.8	164.7	131.8
UMATILLA-WALLA WALLA					
Walla Walla R. So. Fk. nr. Milton	85.0	a	62.7	75.0	62.4
Umatilla R. at Pendleton	235.0	a	96.4	194.0	145.1
McKay Ck. above McKay Reservoir	35.0	a	16.1	20.9	25.1
NORTHEASTERN OREGON					
Bear Ck. near Wallowa	66.0	a	69.6	83.4	65.8
Grande Ronde R. nr. LaGrande	220.0	a	118.8	179.6	151.1
Catherine Ck. near Union	90.0	a	60.9	76.0	66.3
Lostine R. near Lostine	120.0	a	127.7	149.7	117.5
Hurricane Ck. near Joseph	45.0	a	49.9	54.3	43.0
Wallowa R.E.Fk. plus Power Pl.	11.5	a	10.4	13.3	11.1
Imnaha River at Imnaha	300.0	a	228.1	320.5	286.6
Powder River at Salisbury	55.0	a	43.6	76.4	57.8
Burnt R.nr. Herford(Natural Flow)	37.0	62.7	20.2	52.8	35.5
EASTERN OREGON					
Malheur R. Mid.Fk. nr. Drewsey	60.0	74.0	34.1	83.6	75.3
Malheur R., N.Fk. at Beulah	50.0	64.5	32.7	68.9	59.8
Strawberry Ck.nr. Prairie City	7.0	a	7.9	9.9	8.0
HARNEY BASIN					
Silvies R. near Burns	75.0	a	47.7	99.6	88.6
CENTRAL OREGON					
Ochoco Reservoir Net Inflow	27.0	a	8.2	46.4	19.9
Crescent Lake Net Inflow	25.0	a	19.2	22.2	13.7
Odell Ck. near Crescent	37.0	a	28.8	32.6	24.8
Tumalo Creek and C.S. Canal	55.0	a	49.1	60.9	43.4
Squaw Creek near Sisters	60.0	a	45.7	63.5	44.0
SOUTHCENTRAL OREGON					
Deep Creek above Adel	60.0 ^b	a	29.1 ^b	57.6 ^b	59.4 ^b
KLAMATH BASIN					
Upper Klamath Lake Net Inflow	669.5	474.8	326.2	536.7	484.0
Clear Lake Res. Net Inflow	140.0 ^c	54.5 ^c	27.9 ^c	-	110.7 ^{c,d}
Gerber Res. Net Inflow	70.0 ^c	32.7 ^c	18.2 ^c	-	52.5 ^{c,d}

a- Discharge Data not available

b- April-June rather than April-Sept.

c- Water year October 1 to September 30

d- Average for period of record.

(Continued)

BASIN AND STREAM	Apr.-Sept., inc. Streamflow in Thous. Ac. Ft.				
	Forecast 1949	Measured Runoff 1948	1947	10-yr. avg. 1946	1938-47
SOUTHERN OREGON					
Applegate R. near Ruch	140.0	a	64.6	129.6	116.4
Hyatt Res. Net Inflow	7.0	a	2.1	5.5	5.3
Fourmile Lake Net Inflow	8.0	a	6.0	8.7	6.7
Little Butte Ck.N.Fk. below Fish Lake (Natural Flow)	15.0	a	10.1	15.7	13.2
Rogue R. N.Fk. above Prospect	340.0	343.7	248.8	370.4	282.6
Cloarwater River above Trap Ck.	60.0	a	61.4	65.7	58.5
No. Umpqua R. below Lake Creek	160.0	a	157.0	179.1	150.2
WILLAMETTE VALLEY					
Willamette R., Mid.Fk. at Eula	775.0	a	737.1	830.3	704.1
McKenzie R. at McKenzie Bridge	650.0	a	501.2	595.2	500.3
McKenzie River near Vida	1375.0	a	1084.2	1227.8	1054.8

a - Discharge Data not available

b - April-June rather than April-September

c - Water year October 1 to September 30

d - Average for period of record

The following table gives a comparison of 1949 snow-water content with February 1, 1948 and 1947 and with the average for major Oregon drainages:

1949 Snow water content as Percent of that in

Drainage	1948	1947	Average
Owyhee	208	161	129
Malheur	240	185	128
Burnt	147	180	140
Powder	125	126	125
Grande Ronde	130	122	147
Walla Walla	142	174	181
Umatilla	174	206	194
John Day	149	159	147
Deschutes	227	184	190
Crooked	180	277	163
Sandy	179	138	204
Clackamas	297	204	224
Willamette	259	223	237
Umpqua	249	288	190
Rogue	216	170	150
Klamath	283	208	150
Goose Lake	360	225	133
Harney Lake	183	244	150

COMPARISON OF SNOW COVER AS OF FEBRUARY FIRST WITH THAT OF PREVIOUS YEARS

Snow-stored water now present above 5,000 feet:	Snow-stored water now present from 2,000-5,000 feet:			
As Percent of that present one month ago	12.1	As percent of that present one month ago	--	12
As percent of that present one year ago	--	As percent of that present one year ago	--	30
As percent of that present two years ago	--	As percent of that present two years ago	--	27
As percent of average	--	As percent of average	--	22

Snow water content on all measured courses is more than at this time in 1948, and in 96 percent of the comparisons is greater than on about February 1, 1947. Snow water content on 99 percent of all measured courses is greater than average.

Comparative table of eleven scattered snow courses of greatest record length.

STATUS OF SNOW COVER AS OF FEBRUARY FIRST
Summary of Snow Survey Data
By Watersheds as of About February First

Stream Basin	Number of Snow Courses	Average Water Depth in				1949 Snow Water Depth (Inches) as Percent of that in		
		Snow Cover (Inches)		Yrs. Avg. past yrs. of record	Rec- ord	1948	1947	Avg.
		Averaged	1949	1948	1947	1948	1947	Avg.
Cwyhee River	1	10.6	5.1			208		
	1	10.6		6.6	(8)		161	
	1	10.6			8.2			129
Malheur River	3	7.2	3.0			240		
	3	7.2		3.9	(11-18)		185	
	3	7.2			5.6			128
Burnt River	2	8.1	5.5			147		
	2	8.1		4.5	(10-14)		180	
	2	8.1			5.8			140
Powder River	4	16.6	13.3			125		
	4	12.4		9.8	(1-10)		126	
	5	15.0			12.0			125
Pine Creek	1	21.3	15.2			140		
	1	21.3		18.0	(11)		118	
	1	21.3			18.6			114
Imnaha River	2	20.4	18.2			112		
	2	20.4		23.2	(7-19)		88	
	2	20.4			18.2			112
Grande Ronde River	8	19.3	14.8			130		
	8	19.3		15.8	(6-20)		122	
	8	19.3			13.1			147
Walla Walla River	1	29.1	20.5			142		
	1	29.1		16.7	(17)		174	
	1	29.1			16.1			181
Umatilla River	3	18.8	10.8			174		
	4	16.9		8.2	(9-20)		206	
	4	16.9			8.7			194
Willow Creek	1	9.5	7.3			130		
	1	9.5		5.1	(19)		186	
	1	9.5			7.2			132
John Day River	8	9.7	6.5			149		
	8	9.7		6.1	(9-19)		159	
	8	9.7			6.6			147
Deschutes River	3	30.2	13.3			227		
	4	25.1		13.6	(7-18)		184	
	4	25.1			13.2			190

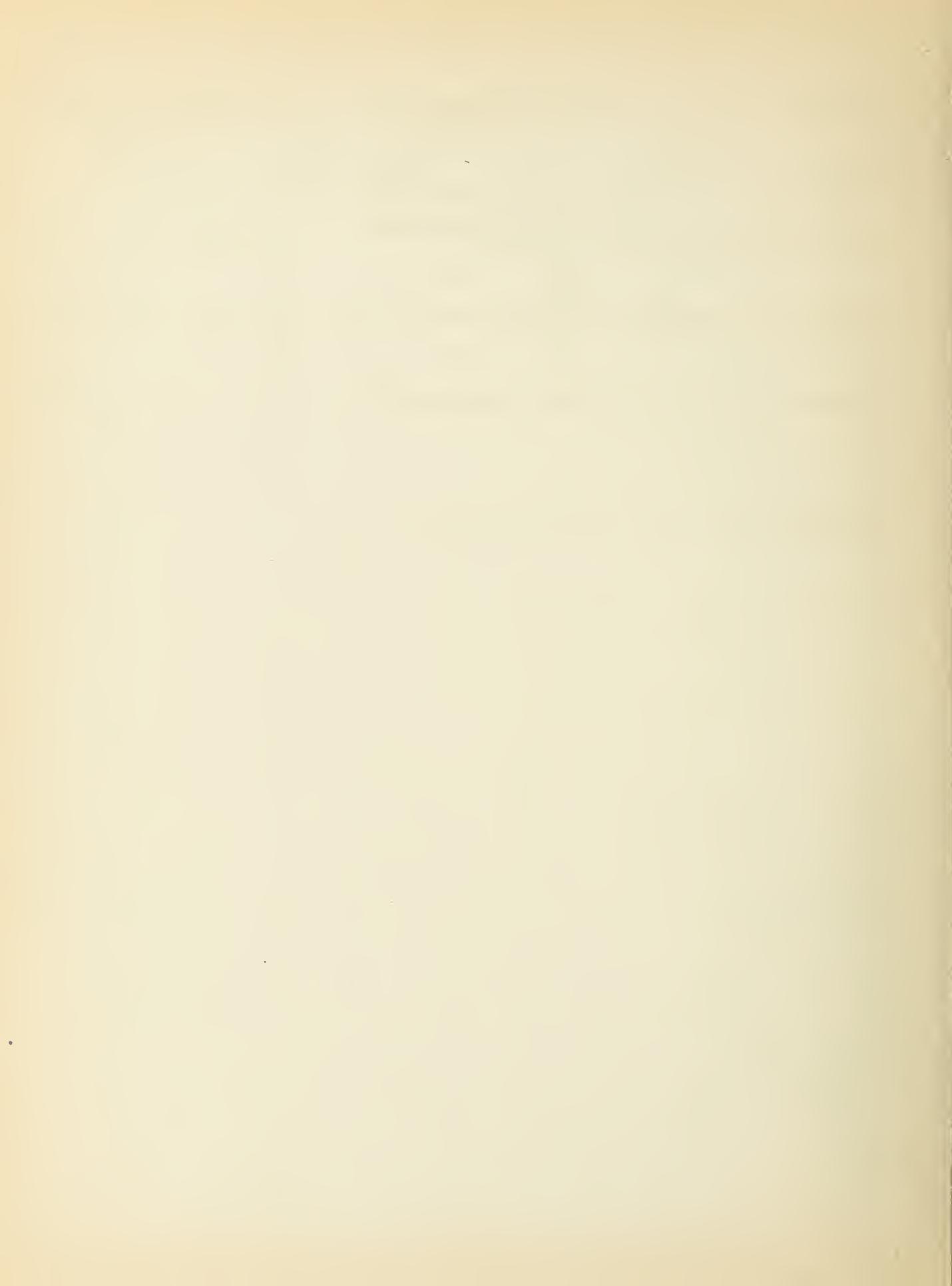
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Stream Basin	Number of Snow Courses Averaged	Average Water Depth in Snow Cover (Inches)				Yrs. of yrs. of record	Rec- ord	1949 Snow Water Depth (Inches) as Percent of that in		
		1949	1948	1947	Avg. past yrs. of record			1948	1947	Avg
Crooked River	3	8.3	4.6					180		
	3	8.3		3.0			(11-19)		277	
	3	8.3			5.1					163
Hood River	2	32.8	12.9					254		
	2	32.8		-			(1)		-	
	2	32.8			12.9					
Sandy River	2	44.0	24.6					179		
	2	44.0		32.0			(11)		138	
	2	44.0			21.6					204
Clackamas River	1	19.0	6.4					297		
	1	19.0		9.3			(11)		204	
	1	19.0			8.5					224
Willamette River	7	30.8	11.9					259		
	6	29.0		13.0			(5-18)		223	
	7	30.8			13.0					237
Silver Lake Basin	1	4.4	0.0					-		
	1	4.4		T			(9)		-	
	1	4.4			2.3					191
Warner Lake	1	9.3	3.9					238		
	1	9.3		3.1			(10)		300	
	1	9.3			6.4					145
Harney Basin	4	6.6	3.6					183		
	4	6.6		2.7			(13-16)		244	
	4	6.6			4.4					150
Umpqua River	3	21.9	8.8					249		
	4	23.0		8.0			(5-20)		288	
	4	23.0			12.1					190
Upper Rogue River	8	16.2	7.5					216		
	10	18.0		10.6			(1-16)		170	
	11	17.0			11.3					150
Applegate River	2	18.0	7.9					228		
	5	16.0		8.5			(7-13)		188	
	5	16.0			12.6					127
Illinois River	2	8.5	-					-		
	2	8.5		3.0			(10-12)		283	
	2	8.5			7.8					109

(Continued)

Stream Basin	Number of Snow Courses	Average Water Depth in				Yrs. of Avg. past yrs. of record	Rec- ord	1949 Snow Water Depth (Inches) as Percent of that in				
		Snow Cover (Inches)										
		Averaged	1949	1948	1947							
Klamath Lake Basin	18 ^w	10.2	3.6					283				
	18 ^w	10.2		4.9			(3-22)		208			
	18 ^w	10.2			6.8					150		
Goose Lake Basin	3 ^v	7.2	2.0					360				
	3 ^v	7.2		3.2			(10-19)		225			
	3 ^v	7.2			5.4					133		

* Including Copco water measurement stations.



STATUS OF RESERVOIR STORAGE, FEBRUARY 1, 1949

BASIN and STREAM	RESERVOIR	CAPACITY (Thous. A.F.)	USABLE	THOUSANDS ACRE FEET IN STORAGE ABOUT FEB. 1					
			1949	1948	1947	1946	10 year avg. 1938-47		
UPPER COLUMBIA DRAINAGE									
LOWER SNAKE IN OREGON									
Owyhee	Antelope	36.5	0.0	3.8	2.8	0.0	3.8 ^d		
	Owyhee	715.0	270.9	310.1	467.4	561.0	498.7		
Malheur	Warm Springs	191.0	14.1 ^e	25.0	97.5	81.2	97.1		
	Agency Valley	60.0	34.9	35.6	35.2	39.3	37.4		
Burnt	Unity	25.2	8.5	4.6	8.1	11.4	9.6 ^f		
Powder	Thief Valley	17.4	2.1 ^g	17.4	15.6	12.2	12.2		
Grande Ronde	Wallowa Lake	40.9	19.2	18.1	25.4	11.2	21.2		
LOWER COLUMBIA DRAINAGE									
Umatilla	McKay	74.0	26.2	53.7	48.9	36.0	33.4		
	Cold Springs	50.0	23.8	38.2	32.9	30.8	28.7		
Deschutes	Ochoco	46.0	31.2 ^g	20.9	25.0	36.3	17.2		
	Crescent Lake	80.0	52.4 ^h	43.8	49.0	30.1	35.3		
	Crane Prairie	50.0	34.8 ^h	39.2	41.4	36.7	31.3 ⁱ		
	Wickiup	180.0	160.4	122.2	68.8	43.0	32.3 ⁱ		
Willamette	Cottage Grove	30.1 ^b	0.0	0.3	0.0	0.0	0.1 ^j		
	Fern Ridge	94.2 ^b	1.2	1.6	0.0	0.0	11.9 ^j		
WEST COAST DRAINAGE									
Rogue	Fish Lake	7.7	5.0	3.2	4.0	3.7	4.3		
	Fourmile Lake ^a	16.0	7.2 ^e	2.1	4.5	4.9	6.7		
	Emigrant Gap	8.2	5.3	8.3	2.3	8.2	4.9		
	Hyatt Prairie ^a	16.0	7.0	2.7	2.1	2.0	5.0		
Klamath	Upper Klamath Lake	584.0 ^c	271.6	283.3	243.8	388.5	350.4		
	Gerber	94.0	14.6	20.9	29.2	31.6	39.1		
	Clear Lake	440.2	135.4	145.1	203.2	252.2	204.5		
Goose Lake	Cottonwood	4.1	0.0	0.0	0.0	N.R.	0.1 ^m		
	Drew	62.5	36.5	22.3	24.8	N.R.	33.7 ^k		

N.R. - No Report

f - Excl. '38

a - By ditch to Rogue River side
from Klamath drainage

g - January 15

b - Storage space reserved for flood control

h - January 12

c - Based on gage zero elevation of 4135.0

i - 1943-47

d - Excl. '43

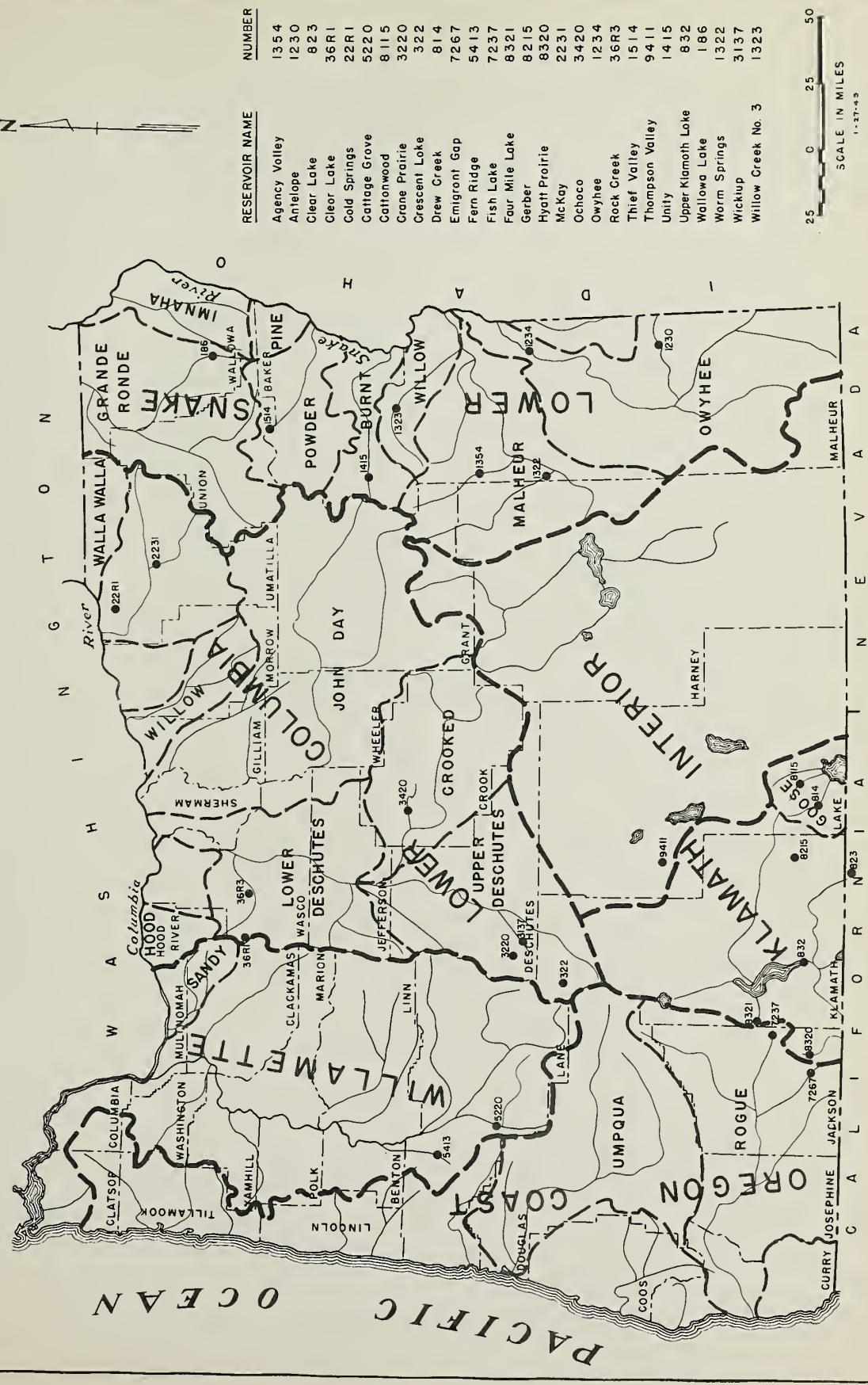
j - 1942-47

e - January 22

k - Excl. '46

m - Excl. '38, '42, '46

IMPORTANT OREGON RESERVOIRS





VALLEY PRECIPITATION^a

DRAINAGE DIVISIONS	CURRENT YEAR		LAST YEAR	
	<u>Oct. 1, 1948 - Feb. 1, 1949</u>		<u>Oct. 1, 1947 - Feb. 1, 1948</u>	
	P	D	P	D
Southeastern	2.79	-1.13	3.40	-0.55
Southcentral	3.33	-0.80	6.56	-0.90
Central	5.31	+0.19	6.93	+1.26
Columbia River	7.62	-0.29	8.31	+2.19
Wallowa Mountains	5.39	-0.71	6.21	-0.38
Blue Mountains	6.10	-0.23	8.93	+1.33
Southern	10.87	-1.86	13.81	+1.05
Willamette Valley	27.59	-0.90	33.84	+5.52

P - Inches Precipitation

D - Inches Departure from Normal

Southeastern - Malheur and Owyhee drainages.

Southcentral - Interior Basin drainages and Goose Lake.

Central - Deschutes and Crooked drainages.

Columbia River - Lower valleys of the Walla Walla, Umatilla, John Day, Deschutes and Hood River drainages.

Wallowa Mountains - Imnaha, Wallowa, Catherine, Eagle and Pine drainages.

Blue Mountains - Upper valleys of the Burnt, Powder, Grande Ronde, Umatilla, Walla Walla, John Day, Silvies and Malheur drainages.

Southern - Umpqua, Rogue and Klamath drainages.

Willamette Valley - All Willamette drainages.

Note: There is greater than usual difference between valley precipitation, now 90 percent normal, and accumulated mountain snow, now 156 percent normal in the state. It is obvious that considerable caution should therefore be employed in attempting to forecast stream discharge from precipitation rather than snow data.

a - Preliminary data computed from Weather Bureau records.



OREGON SURVEYS, FEBRUARY, 1949

DRAINAGE BASIN and SINCH. COURSE	Number or State.	Sec.	Twp.	Range	Elev.	SINCH COVER MEASUREMENTS										
						Date of Survey	Snow Depth (In.)	Water Content (In.)	Years of Record	Avg. Water Content (Inches)	Past Record					
<u>U P P E R C O L U M B I A D R A I N A G E</u>																
<u>L O W E R S N A K E I N O R E G O N</u>																
OWYHEE RIVER																
Big Bend	Nev.	30	45N	56E	6700	2-2	51.6	8.4	No previous survey	9.4						
Gold Creek	Nev.	31	45N	56E	6600	2-2	24.9	5.8	" "	4.3						
South Mountain No. 2	Idaho	35	78	5W	6340	2-3	40.5	10.6	5.1	3.1						
MALHEUR RIVER																
Blue Mountain Springs	133	21	15S	35E	5900	1-27	41.5	11.9	7.0	18						
Rock Spring	134	23	16S	32E	5100	1-29	24.5	5.8	3.0	13						
Stinkingwater	135	33	21S	34E	4800	1-31	18.8	4.0	T	11						
BURNT RIVER																
Blue Mountain Summit	141	6	12S	36E	5098	1-30	32.6	8.9	6.2	5.1	14					
Dooley Mountain	156	32	11S	40E	5430	1-27	28.0	7.3	4.8	3.9	10					
POWDER RIVER																
Anthony Lake	155	18	7S	37E	7125	1-30	70.2	24.0	16.0	9	18.4					
Dooley Mountain	156	32	11S	40E	5430	1-27	28.0	7.3	4.8	3.9	6.0					
Elliottson Meadows	151B	18	8S	38E	5400	1-31	34.0	8.5	-	3.7	6.8					
Gold Center	249	21	9S	36E	5340	1-28	36.0	9.8	8.5	5.7	7.0					
Goodrich Lake	157	34&35	8S	38E	6775	1-29	76.9	25.2	22.0	-	22.0					
PINE CREEK																
Schneider Meadows	161	35	6S	45E	5400	1-29	59.5	21.3	15.2	18.0	11					



OREGON SNOW SURVEYS, FEBRUARY, 1949

DRAINAGE BASIN and SNOW COURSE	Number or State	Sec.	Twp.	Range	Elev.	SNOW COVER MEASUREMENTS					
						Date of Survey	Snow Depth (in.)	Water Content, in.)	Past Record Years	Record of Continent Years	Record (Inches)
GRANDE RONDE RIVER											
Aneroid Lake No. 1	183	16	4S	45E	7480	1-28	68.3	23.3	20.0	25.9	19
Aneroid Lake No. 2	183A	16	4S	45E	7000	1-28	57.3	17.4	16.5	20.5	7
Anthony Lake	155	18	7S	57E	7125	1-50	70.2	24.0	18.0	26.0	9
Beaver Reservoir	188	6	5S	37E	5340	2-2	46.9	14.2	8.6	7.8	10
Camp Carson	187	33	6S	36E	5970	1-30	40.5	11.3	7.1	7.4	6
Meacham	221	24&25	1S	35E	4300	1-29	42.0	13.5	6.5	4.4	20
Moss Spring	186A	28	3S	41E	5850	1-31	57.1	21.5	17.8	11	14.5
Tollgate	212	32	4N	38E	5070	1-29	78.6	29.1	20.5	16.7	17
LOW COLUMBIA RIVER											
Tollgate	212	32	4N	38E	5070	1-29	78.6	29.1	20.5	16.7	17
WALLA WALLA RIVER											
UMATILLA RIVER											
Emigrant Springs	222	29	1N	35E	3925	1-29	43.2	13.7	5.4	3.3	20
Lucky Strike	223	28	3S	32E	5050	1-27	40.4	11.2	-	8.2	9
Meacham	221	24&25	1S	35E	4300	1-29	42.0	13.5	6.5	4.4	20
Tollgate	212	32	4N	38E	5070	1-29	78.6	29.1	20.5	16.7	17
WILLOW CREEK											
Arbuckle Mountain	241	33	4S	29E	5400	2-1	34.3	9.5	7.3	5.1	19
JOHN DAY RIVER											
Arbuckle Mountain	241	33	4S	29E	5400	2-1	34.6	9.5	7.3	5.1	19
Beech Creek Summit	246A	4	12S	30E	4800	1-31	23.8	5.0	2.5	1.8	12

LOW COLUMBIA RIVER

LOCATION	Number or State	Sec.	Twp.	Range	Elev.	Date of Survey	Snow Depth (in.)	Water Content, in.)	Past Record Years	Record of Continent Years	Record (Inches)
WALLA WALLA RIVER											
UMATILLA RIVER											
Emigrant Springs	222	29	1N	35E	3925	1-29	43.2	13.7	5.4	3.3	20
Lucky Strike	223	28	3S	32E	5050	1-27	40.4	11.2	-	8.2	9
Meacham	221	24&25	1S	35E	4300	1-29	42.0	13.5	6.5	4.4	20
Tollgate	212	32	4N	38E	5070	1-29	78.6	29.1	20.5	16.7	17
WILLOW CREEK											
Arbuckle Mountain	241	33	4S	29E	5400	2-1	34.3	9.5	7.3	5.1	19
JOHN DAY RIVER											
Arbuckle Mountain	241	33	4S	29E	5400	2-1	34.6	9.5	7.3	5.1	19
Beech Creek Summit	246A	4	12S	30E	4800	1-31	23.8	5.0	2.5	1.8	12



OREGON SNOW SURVEYS, FEBRUARY, 1949

DRAINAGE BASIN and SNOW COURSE	Number or State	Sec.	Twp.	Range	Elev.	LOCATION						SNOW COVER MEASUREMENTS					
						Date of Survey	Snow Depth (In.)	1949	1948	1947	Years of Record	Ave Water Content (Inches)	Past Record				
JOHN DAY RIVER (Cont'd)																	
Blue Mountain Springs	133	21	15S	35E	5900	1-27	41.5	11.9	7.0	9.3	18	9.4					
Blue Mountain Summit	141	6	12S	36E	5098	1-30	32.6	8.9	6.2	5.1	11	5.6					
Gold Center	249	21	9S	36E	5340	1-28	36.0	9.8	8.5	5.7	9	7.0					
Izze Summit	964	28	16S	29E	5293	1-27	31.8	8.9	6.2	3.7	13	5.6					
Olive Lake	245	14	9S	33½E	6000	1-30	55.3	17.0	12.0	15.6	13	10.2					
Starr Ridge	247B	20	15S	31E	5150	1-27	26.3	6.4	2.6	2.6	13	3.8					
CROOKED RIVER																	
Derr	343	14	13S	23E	5670	2-1	31.7	7.8	5.9	5.4	11	5.8					
Marks Creek	344	25	12S	19E	4540	1-28	28.1	5.9	1.2	0.7	11	3.0					
Ochoco Meadows	341	21	13S	20E	5200	1-29	40.2	11.3	6.0	2.8	19	6.5					
DESCHUTES RIVER																	
Caldwell Ranch	326	30	21S	8E	4400	1-13	40.0	9.8	-	3.3	7	4.9					
Cascade Summit	321	7	23S	6E	4880	1-31	89.0	32.1	13.8	18.0	18	18.4					
Crescent Lake	325	11	24S	6E	4760	1-31	45.8	15.0	4.9	4.2	13	7.9					
Hogg Pass	351	24	13S	7½E	4755	2-2	116.8	43.4	21.3	29.1	11	21.8					
HOOD RIVER																	
Tilly Jane - Mt. Hood	432	15	2S	9E	6000	1-30	95.9	41.6	18.4	-	1	18.4					
SANDY RIVER																	
Phlox Point - Mt. Hood	452	6	3S	SE	5300	2-2	137.2	56.4	36.4	49.2	11	32.1					
Still Creek	451	25	3S	8½E	3700	2-2	65.3	31.5	12.7	14.9	11	11.0					



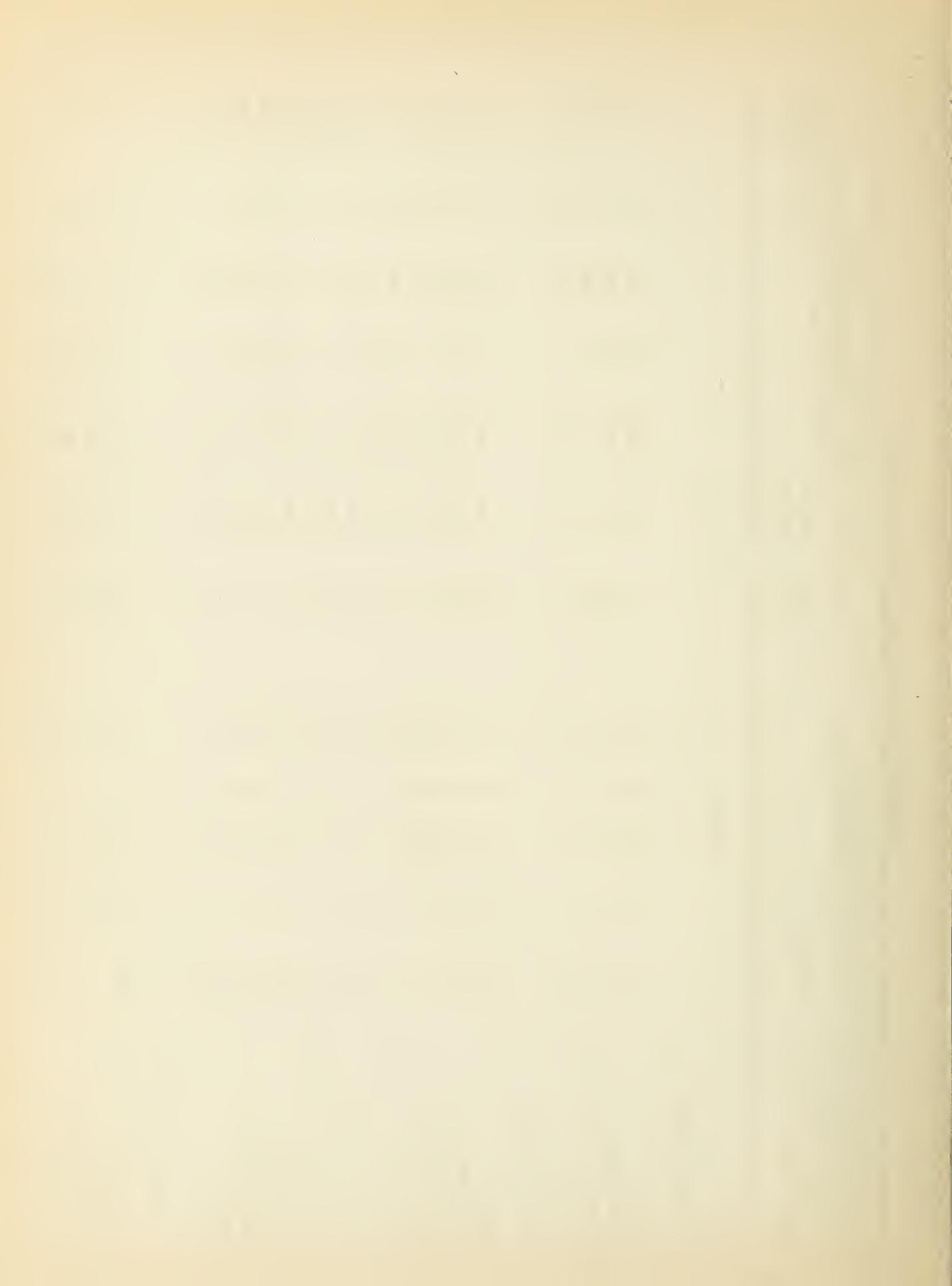
OREGON SNOW SURVEYS, FEBRUARY; 1949



OREGON SNOW SURVEYS, FEBRUARY, 1949

DRAINAGE BASIN and SNOW COURSE	Number or State Sec. • Twp. Range Elev.	LOCATION		SNOW COVER MEASUREMENTS					
		Date of Survey	Snow Depth (In.)	1949	1948	1947	Past Record	Years Av. Water Content of Content (Inches)	
<u>W E S T C O A S T D R A I N A G E</u>									
UMPQUA RIVER									
Champion	522	12	23S	1E	4500	2-1	75•9	31•1	9•0
Diamond Lake	743	29	27S	6E	5315	1-31	57•0	19•1	11•8
N. Umpqua Nr. Lake Ck.	742	19	26S	6E	4215	1-15	51•4	15•6	5•6
Whaleback	7217	3	31S	2E	5140	2-1	73•2	26•1	-
ROGUE RIVER									
Althouse	7216	17	41S	7W	4400	1-31	14•9	3•8	-
Annie Spring	831	19	31S	6E	6018	1-28	83•3	31•5	18•4
Big Red Mountain	729	31	40S	1W	6500	1-29	53•1	17•4	-
Grayback Peak	727	9	40S	5W	6000	1-31	38•3	13•2	-
Hyatt Prairie Reservoir	723	15	39S	3E	4900	1-27	36•2	10•2	3•5
Hobart Lake	7221	17	40S	3E	5010	1-28	23•3	6•6	0•4
Little Red Mtn.	7210	25	40S	2W	6500	1-29	41•9	13•6	-
Park Headquarters	838	8	31S	6E	6450	1-28	98•8	38•1	24•2
Scragg Mountain(Calif.)	7220	9	47N	10W	6200	1-30	57•2	22•0	7•1
Silver Burn	7219	30	30S	4E	3720	1-29	46•3	13•3	3•1
Siskiyou Summit	728	17	40S	2E	4630	2-1	28•5	8•4	0•6
South Fork Canal	7218	12	33S	3E	3500	1-29	24•9	7•6	0•0
Wagner Butte	7213	1	40S	1W	6900	1-26	44•2	14•0	8•7
Whaleback	7217	3	31S	2E	5140	2-1	73•2	26•1	-
KLAMATH LAKE BASIN									
Annie Spring	831	19	31S	6E	6018	1-28	83•3	31•5	18•4
Beatty <u>2</u> / Bly 101 Ranch <u>2</u>	22	36S	12E	4300	1-31	6•5	1•2	0•0	1•0
Chemult No. 1	834	21	35S	14E	4800	1-31	18•0	4•2	0•0
			27S	8E	4760	1-31	31•4	8•2	4•1

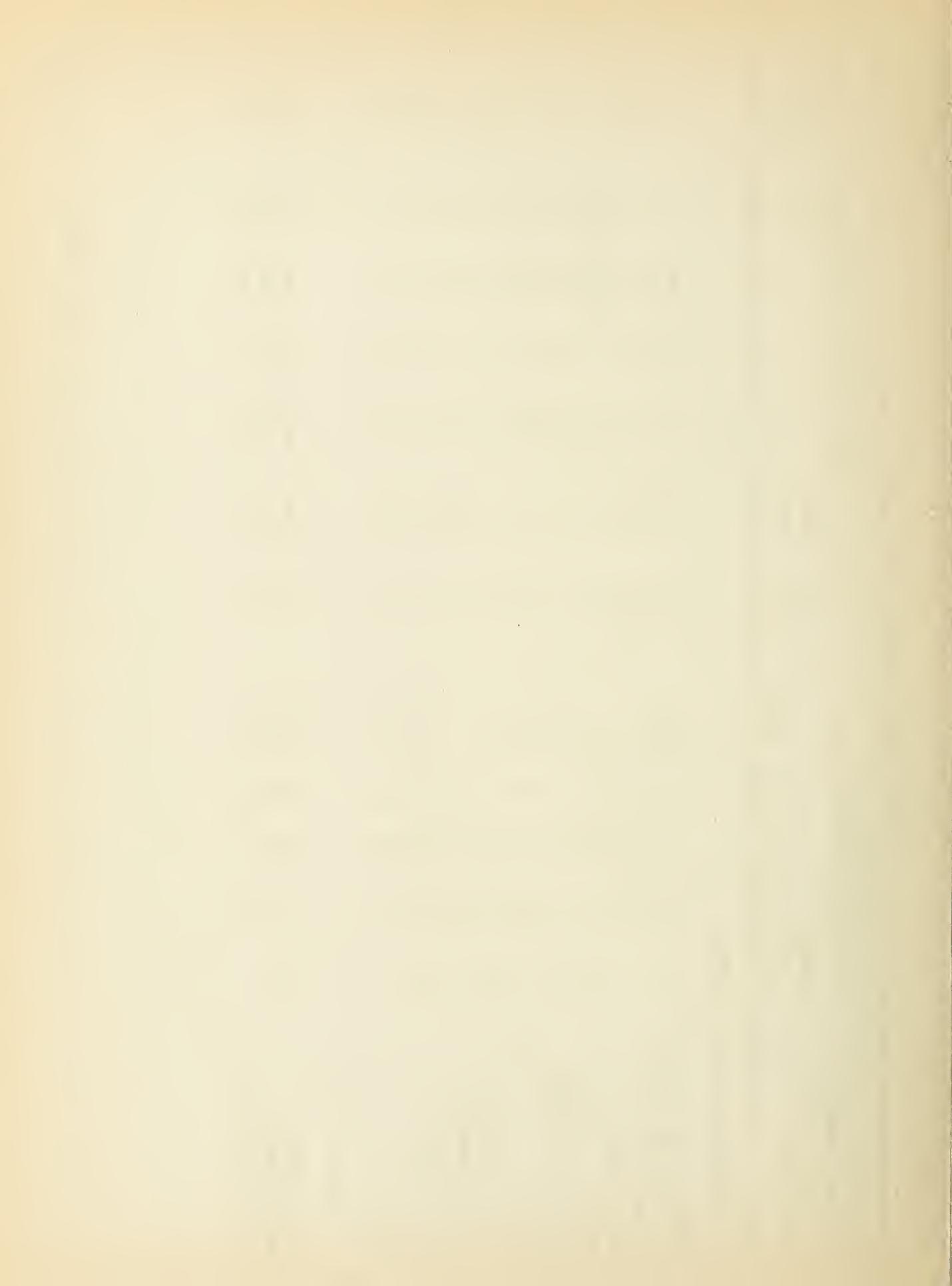
2/- Water Content determined by melting one measured sample (California Oregon Power Company's Station.)



OREGON SNOW SURVEYS, FEBRUARY, 1949

DRAINAGE BASIN and SNOW COURSE	Number or State	Sec.	Twp.	Range	Elev.	LOCATION	SNOW COVER MEASUREMENTS					
							Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Years	Ave Water Content of Record (Inches)	
KLAMATH LAKE BASIN (Cont'd)												
Chiloquin 2/ Crowder Flat (Calif.)	34	34S	7E	4187		1-31	8.5	2.0	0.0	0.8	1.9	2.0
Crystal 2/ Fort Klamath 2/	30	47N	11E	5200		2-2	22.8	5.1	0.0	0.6	9	2.5
Gerber	26	34S	6E	4200		1-31	31.0	11.0	2.0	3.0	1.9	5.9
Harriman Lodge 2/ Hyatt Prairie Res.	22	33S	7½E	4150		1-31	21.0	5.6	0.0	1.1	2.2	3.5
Kirk 2/ Lake of the Woods No. 1	839	12	39S	13E	4850	1-31	17.2	4.8	New Snow Course			
Park Headquarters	3	36S	6E	4200		1-31	26.0	6.5	0.0	2.4	2.2	3.4
Quartz Mountain	723	15	39S	3E	4900	1-27	36.2	10.2	3.5	2.9	1.4	6.1
Quartz Mountain 2/ Sun Mountain	1	33S	7E	4533		1-31	32.0	8.5	0.9	1.9	2.2	4.9
Taylor Butte	835	11	37S	5E	4960	1-31	34.2	11.8	2.7	3.9	1.2	5.2
Yamsey 2/	838	8	31S	6E	6450	1-28	98.8	38.1	24.2	29.9	3	24.2
	811	2	38S	16E	5320	2-1	25.4	6.6	T	2.6	1.9	4.7
	33	37S	16E	5504		1-31	20.0	5.8	2.2	4.0	1.9	5.2
	836	22	32S	7½E	5350	1-31	56.1	19.3	7.8	11.8	1.1	15.4
	842	16	33S	11E	5100	1-27	20.4	4.8	0.0	0.6	1.2	3.2
	20	31S	11E	4600		1-31	16.5	4.1	0.0	0.0	1.8	1.9
GOOSE LAKE BASIN												
Camas Creek	911A	5	39S	21E	5720	1-28	33.9	9.3	3.9	3.1	1.0	6.4
Quartz Mountain	811	2	38S	16E	5320	2-1	25.4	6.6	T	2.6	1.9	4.7
Quartz Mountain 2/	33	37S	16E	5504		1-31	20.0	5.8	2.2	4.0	1.9	5.2

2/ Water content determined by melting one measured sample (The California Oregon Power Company's station.)



The following organizations cooperate in the Oregon snow survey work:

STATE

Idaho Cooperative Snow Surveys
Nevada Cooperative Snow Surveys
Oregon Agricultural Experiment Station
Oregon State Engineer and corps of State Watermasters
Oregon State Highway Engineers

FEDERAL

Department of Agriculture
Forest Service
Soil Conservation Service
Department of Commerce
Weather Bureau
Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Fish and Wildlife Service
Geological Survey
Indian Service
National Park Service
War Department
Army Engineer Corps

PUBLIC UTILITIES

California-Pacific Utilities Company
Portland General Electric Company
The California Oregon Power Company

MUNICIPALITIES

City of Baker
City of Corvallis
City of LaGrande
City of The Dalles

IRRIGATION DISTRICTS

Associated Ditch Companies
Central Oregon Irrigation District
Deschutes County Municipal Improvement District
East Fork Irrigation District
Grants Pass Irrigation District
Jordan Valley Irrigation District
Lakeview Water Users Incorporated
Medford Irrigation District
Ochoco Irrigation District
Rogue River Irrigation District
Talent Irrigation District
Valo-Oregon Irrigation District
Warmsprings Irrigation District

PRIVATE ORGANIZATIONS

Amalgamated Sugar Company
South Wasco Soil Conservation District
The Crag Rats-Hood River-Oregon



